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[54] **INTERFERENCE CANCELING METHOD AND APPARATUS**

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[57] **ABSTRACT**

Interference canceling is provided for canceling, from a target signal generated from a target source, an interference signal generated by an interference source. The beam splitter beam-splits the target signal into a plurality of band-limited target signals band-limited frequency bands and beam-splits the interference signal into corresponding band-limited frequency bands. The adaptive filter adaptively filters each band-limited interference signal from each corresponding band-limited target signal. The inhibitor can permit the adaptive filter to adapt or change coefficients when a signal-to-noise ratio of the reference signal exceeds a predetermined threshold, to be determined periodically, over a signal-to-noise ratio of the main signal. The beam selector selects at least one of a plurality of beams for adaptive filtering by the adaptive filter representing a direction from which the main signal is received. The beam selector selects beams simultaneously to improve accuracy and, in particular, selects a beam having a fixed direction and a beam which rotates in direction. The noise gate gates the main signal adaptively filtered by the adaptive filter by opening the noise gate when a signal-to-noise ratio at the near end is above a predetermined threshold and closing the noise gate when the signal-to-noise ratio at the near end is below the predetermined threshold. When the target signal represents speech generated at a near end of a teleconference, the adaptive filter cancels an echo present in the reference signal broadcast to a far end of the teleconference.

37 Claims, 7 Drawing Sheets